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# Worldwide Report

ENVIRONMENTAL QUALITY

No. 325

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INDIAN TEAM STUDIES PRC ENVIRONMENTAL EFFORTS

Madras THE HINDU in English 14 Sep 81 p 9

[Text]

A four-member team of experts in environment will tour China for three weeks from tomorrow to study how China has been tackling the problems of ecological and environmental degradation.

The team consists of Mr. B. B. Vohra, chairman of the National Committee on Environmental Protection and Coordination (NCEPC), Mr. Digvijay Singh, MP, and Mr. Dilip Mather who are members of the NCEPC and Dr. Leith Nath, a member of the Indian Board of Wildlife.

**Areas of study:** According to Mr. Vohra, the team has identified five broad areas for study. One relates to the way China has prevented denudation and destruction of land and water resources. China is known to have not only checked destruction of forests but also enlarged the area under forests.

In an interview with THE HINDU today, Mr. Vohra said about 50 million hectares had been reforested in China over the last three decades. He felt India could take a lesson from this, as over the last three decades the area under forests had been shrinking.

The Chinese were also noted for the way they had tamed the Yellow river and managed their land resources.

Of late, in India, there had been greater awareness of the need for proper management of land and water resources and a Central land commission is proposed to be set up to achieve the purpose.

The second area of study by the team would be sanitation, drinking water supply and utilisation of waste products in China.

Mr. Vohra recalled that China had always realised the importance of night-soil as a manure and used to apply it directly in the fields. For this purpose, the night-soil used to be collected from each family by a contract. China had been utilising now the night-soil in biogas plants and the fertilizer produced as a byproduct was used in the fields.

It had seven million biogas plants compared to 80,000 in India.

The team would study the way China has been providing sanitation facilities and drinking water supply in the villages.

Conservation of living resources, control of industrial pollution and creation of environmental awareness among the different section of the people are the other areas in which the team will study the Chinese techniques.

CSO: 5000/7004



EDITORIAL RAPS VICTORIA EPA, GOVERNMENT ON POLLUTION

Melbourne THE AGE in English 26 Aug 81 p 13

[Editorial: "Clouds Hang Over Newport"]

[Text]

It seems a long time since public concern about the potential of the Newport D power station to pollute Melbourne helped to make it one of Victoria's biggest political issues. This winter's power shortages, and the probability that there will be more to come, have created a climate in which the majority of people would probably welcome Newport's power, however much it fouled the skies. But this phase will pass and we will still be left with a fundamental dilemma: should we continue to operate Newport if we believe it is adding to air pollution in the city?

The original licence for the station issued in 1973 included a condition that the Environment Protection Authority could order the SEC to shut down Newport or reduce its load whenever meteorological conditions were "unsatisfactory". But how often would this be? On what criteria would the EPA make such a decision? Eight years later, we still do not know. The systematic study of the Melbourne airshed ordered by the Newport Review Panel in 1977 did not even begin until late 1980. So far the EPA has established only two of the eight monitoring stations it says are needed to provide data for the accurate prediction of

pollution levels before they occur. It will be at least a year before the authority can even start trying to predict the incidence and levels of photochemical smog, let alone forecast with such certitude that it would feel justified in ordering Newport to close.

Once again the EPA is in the position of being unable to enforce the rules it has set. By June last year, 1727 factories in Victoria were operating under EPA licences which restricted their emission of pollutants to the air. But in the year then ending the EPA had checked only 17 premises to see if the conditions it set were being adhered to. It relies almost entirely on the companies involved to monitor their own emissions and even serious breaches, like the repeated escape of large quantities of dangerous vinyl chloride monomer from the B. F. Goodrich plant at Altona, have not led to disciplinary action because the EPA cannot prosecute companies unless it has independently obtained evidence against them.

All Government agencies responsible for policing regulations share the EPA's problem. Their ambitions and the public's expectations of them are large — but the funds available for the job do not match up, and never will. It is obvious from the air quality policy adopted

# WA GOVERNMENT MOVES TO CLEAN UP PEEL-HARVEY ESTUARY

Perth THE WEST AUSTRALIAN in English 26 Aug 81 p 9

[Text]

**The WA Government will take action designed to control the algae problem in the Peel Inlet and Harvey Estuary.**

Measures will be directed mainly at achieving a big reduction in all sources of nutrients available to plants in the estuary system, especially phosphorous.

The management plan is in line with recommendations by the estuarine and marine advisory committee of the Environmental Protection Authority.

The Premier, Sir Charles Court, said yesterday that the recommendations had been adopted with only minor changes.

The committee found in a four-year study that agricultural practices in the Peel-Harvey catchments over the past 30 to 40 years had caused the estuary to be fertilised with plant nutrients.

Excess phosphorous and nitrogen had resulted in ideal conditions for the growth of algae, which had needed remedial action in Peel Inlet since 1974.

## INCREASE

The annual amount of phosphorous in the estuary system had increased from 20 to 30 tonnes in the 1950s to about 120 to 130 tonnes now.

The committee said that the amount of phosphorous going into the estuary had to be at least halved if the net loss to the sea was to balance gains from drainage.

The Government has decided to ask the Departments of Agriculture and Conservation and the En-

vironment and the CSIRO to study urgently ways of achieving a big reduction in the release of phosphorous from coastal plain soils.

It has adopted other recommendations providing for:

- An investigation into the practicability of either diverting phosphorous-rich water away from the estuary, or introducing plants into drainage systems to use excess phosphorous.

- Measures to ensure that there is no significant increase of nutrients in the estuary from urban sources.

[The committee recommended that housing developments within at least 2km of the estuary should have deep sewerage. The Government modified this to take account of small-scale urban developments that could be served by approved systems other than deep sewerage.]

- All engineering works in the Mandurah channel to be designed, where possible, to increase flushing, especially under flood conditions.

- No action to be permitted that might decrease the flushing of nutrients to the sea, either by restricting the size of the Mandurah channel or by reducing the flow of nutrient-poor water from hills catchments, except where dams were needed for approved water supplies.

[The committee recom-

mendation was changed to include the proviso about dams.]

- Weed removal to be continued and extended farther offshore to remove algae where it first accumulates.

- Studies to determine the practicability of harvesting algae in water deeper than 50cm.

- An investigation of dredging to remove the top 10cm of nutrient-enriched sediment from the estuary.

[The committee said removal of such sediment in deeper parts of Peel Inlet could deplete phosphorous to a level that might greatly reduce algae growth for five to 10 years.]

- Regular monitoring of the estuary to determine the amount of algae and nutrients.

## VALUE

Sir Charles said that the Peel-Harvey estuary was a valuable fishery and a near-metropolitan recreation and tourist facility of inestimable value.

Government departments responsible for research and monitoring recommended in the report would give priority to the work.

Other recommendations would be implemented to the extent that finance could be made available each year.

The study of the algae problem, which began in 1975, has cost more than \$500,000.



Twenty scientists from the University of WA, Murdoch University, the WA Institute of Technology, the WA Museum, the Australian National University and government departments examined the system in one of the most comprehensive environmental investigations ever undertaken on an Australian estuary.

But in its report released yesterday the Estuarine and Marine Advisory Committee said its

understanding of the workings of the estuarine ecosystem was far from complete.

Further study was needed to support conclusions and recommendations, some of which had necessarily been made on inadequate data.

The Peel Inlet had an abundance of bottom-living green algae which had accumulated to nuisance levels requiring remedial action since 1974.

[In a related article on the same page the paper reports that the "research team that studied the Peel-Harvey estuarine system thinks that a dam on the Murray River might worsen nutrient levels in the Peel Inlet. It said in a report to the estuarine and marine advisory committee that any dam on the Murray that retained drinking water and allowed discharge of nitrogen-rich saline water to the estuary might worsen nutrient concentrations."

CSO: 5000/7501

# WA LIFTS CANAL BAN ON COMMITTEE RECOMMENDATIONS

Perth THE WEST AUSTRALIAN in English 27 Aug 81 p 41

[Text]

The WA Government has lifted its moratorium on canal developments and adopted new guidelines for the development of canal estates.

The moratorium was announced in July last year after a committee was established to examine problems associated with canal developments.

The Cabinet has adopted the committee's recommendations for coordinated planning of such developments and procedures for developing and managing canal estates.

The committee, headed by the Waterways Commissioner, Mr N. Robins, put a 31-page report to the Cabinet, proposing procedures under which the impact of proposals would be understood before any approvals were issued.

It recommended the preparation of a notice of intent for each proposal and use of the environmental Protection Authority's environmental review and management programme system to assess proposals.

The committee also set out guidelines for canal

design, protection of water quality, shore stability, navigation safety, moorings, jetties, launching ramps and subdivision needs.

The Premier, Sir Charles Court, said yesterday that the committee had identified the necessary procedure for intending canal developers to obtain approval for new estates.

The Cabinet had added additional provision for public involvement in the early information-gathering stages of canal projects.

The proposed procedures would overcome problems in dealing with a big number of authorities and would permit decisions to be made quicker through better coordination.

Sir Charles said the committee had acknowledged that good-quality canal or harbour development could make a valuable contribution to the lifestyle in WA.

# WEST PLANS BROAD, 3-YEAR STUDY ON SALINITY PROBLEMS

Canberra THE AUSTRALIAN in English 3 Sep 81 p 18

[Article by Joe Poprzeczny]

[Text]

THE West Australian Agriculture Department is to undertake a three-year salinity research project in conjunction with two of the State's largest agricultural companies.

Westfarmers, one of the State's largest stock companies has provided \$40,000 to launch the project.

Another company, as yet unnamed, will join the venture and it is believed its contribution will be slightly less than \$100,000.

The State Minister for Agriculture, Mr Old, said the project would be launched in 1982 and involved collecting detailed information about an entire agricultural water catchment system.

Data collected on the water cycle system will be used as input for a computer model recently developed by experts at the West Australian In-

stitute of Technology's School of Physics.

"Data obtained during the study will be used to develop and test a model," Mr Old said.

"It will then be applied for predictive purposes to assess the likelihood of land becoming saline and to predict the time it will take for treatment to be effective in reversing such salinisation processes."

The salinity problems had caused heated controversy among West Australian farmers since the late 1970s.

Salinity also became a serious issue at last year's State election. Premier, Sir Charles Court, announced before the poll that a Cabinet Committee on Land Resources would be formed and given an expanded budget.

He said the committee's task would be to develop a firm management control program during the coming decade.

The salinity research project would form the basis of this program.

CSO: 5000/7501

DEMONSTRATORS MARCH IN HOBART AGAINST FRANKLIN DAM

Melbourne THE AGE in English 3 Sep 81 p 5

[Text]

**HOBART.** — Up to 4000 pro-wilderness demonstrators marched through Hobart yesterday to oppose dams in the south-west.

The crowd gathered on the front lawns of Parliament House, and egged on by vocal MP Dr Sanders, made sure any politicians inside or nearby got their message.

The demonstrators, young and old, white and black, from most social groups, marched peacefully through Hobart's streets from Franklin Square.

They were led by the director of the Tasmanian Wilderness Society, Dr Bob Brown, and actress Lorraine Bayly.

The rally was addressed by a number of pro-conservation speakers — others with a contrary opinion were politely barred, as the Opposition spokesman on energy, Mr Mather, found out.

The Minister for National Parks and Wildlife, Mr Lohrey, said the

Franklin River would not be flooded as long as people kept fighting with "honest information".

"I don't believe the Franklin River will be flooded," he said. "In fact, I know the Franklin River will not be flooded. With your support, it will never be flooded."

He said advocates of dams in the south-west used two tactics — fear that there would not be enough power for the future, and confusion with sometimes inaccurate information.

"The Franklin is more than one of the last wild rivers in the world. It is a symbol of hope for tomorrow," Mr Lohrey said.

Miss Bayly said she believed the south-west wilderness was one of the world's wonders, comparable with Ayers Rock and the Great Barrier Reef.

At a lunchtime rally outside the Tasmanian Tourist Bureau in Melbourne yesterday, more than 400 people signed a letter calling on the ALP to save the Franklin River.

# NEW LEGISLATION PLANNED TO CLAMP DOWN ON ENDANGERED IMPORTS

Canberra THE AUSTRALIAN in English 2 Sep 81 p 2

[Article by Geoff Sorby]

[Text]

AUSTRALIA, which already has a tough policy towards the export of plants and animals, is to join international moves to stop the free flow of endangered species around the world.

The Minister for Business and Consumer Affairs, Mr Moore, and the Minister for Home Affairs and Environment, Mr Wilson, yesterday foreshadowed legislation to stop the trade.

The new legislation will strengthen controls on exports of native species and will broaden controls under the Customs Act which relate to imports of plants and animals listed by the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

It will also prohibit imports or exports of particular animals and plants, and their products, even if not endangered, if the Minister for Home Affairs and Environment believe they warrant special protection.

It is intended to introduce the new legislation as quickly as possible.

In the meantime, existing controls under the Customs Act will continue to be strictly

enforced.

The ministers said that the main purpose of the amendments was to include in the regulations those animal and plant species which have been added to CITES since it was ratified by Australia in 1976.

Many species of Australian native plants and species of animals are subject to the provisions of the regulations.

The ministers warned people importing wildlife products, such as goods manufactured from elephant ivory and reptile skin, that such goods were subject to very strict controls.

In some circumstances, goods derived from certain species may not be imported even if the importer can produce an export permit from the country of origin.

The ministers noted that since 1976, although many Australians had become aware of the regulations, officers of the Department of Business and Consumer Affairs had seized large quantities of goods derived from endangered species.

They said it was unfortunate that some Australians were often unwittingly contributing to the decline of some species by continuing to buy their products.



GOVERNMENT ATTACKED FOR IGNORING SAFETY IN HERBICIDE USE

Perth THE WEST AUSTRALIAN in English 7 Sep 81 p 11

[Text]

Canberra: The Federal Government came under renewed attack yesterday for failing to act on birth-defect scares arising from the use of dioxin-contaminated herbicides in Australia.

The Federal Opposition spokesman on the environment and conservation, Mr West (NSW) said that revelations in Western Australia last week highlighted the Government's "scandalous disregard for public safety."

Evidence from the Environment Minister, Mr Wilson had revealed that he considered such serious matters should be left to the States, Mr West said.

Mr West referred to the recall by the West Australian Government last week of 4000 litres of the herbicide 245T which contained dioxin.

He said that dioxin was the lethal component of Agent Orange which was suspected of causing

birth-defects.

The herbicide was distributed mainly in the Eastern States.

Safety checks had revealed that the dioxin level was four times above the permitted level.

The company involved had been accused of distributing 25 tonnes of herbicide containing dioxin at 400 times the permitted level in the early 1970s.

Despite repeated appeals, Mr Wilson had refused to accept Federal responsibility for the control of herbicides, Mr West said.

The movement of products interstate was beyond individual State controls.

CSO: 5000/7501

## BRIEFS

**ROAD SPILL COSTS**--Owners of oil and other tankers involved in road accidents in Queensland are to be charged the cost of removing spillage from the roadway. Provision for state fire fighting authorities to charge tanker owners with clean-up costs was approved by the joint government parties yesterday. The provision is part of an Australia-wide move for greater control over the transport of dangerous goods generally. The Queensland move followed national concern over the costs incurred in removing spillages of oil, petrol, chemicals and other dangerous substances carried by road tankers. The costs often are substantial, particularly if special equipment and operators are required in cases of inflammable or toxic spillages. At present, clean-up costs are borne by local councils, police departments or whoever effects a clean-up. The joint parties meeting yesterday also repealed legislation obliging bread vendors to "serve any house he passes in his horse and cart." The legislation, enacted last century, required bread vendors to serve any house they passed on their usual round, whether they wanted that person as a customer or not. [Text] [Brisbane THE COURIER-MAIL in English 27 Aug 81 p 11]

**RAIN FOREST THREAT**--A 60 sq km rain forest area in north Queensland was in danger of being destroyed, the Queensland Conservation Council warned yesterday. The council chairman, Mr John McCabe, said the Forestry Department had proposed to log the Downey Creek rain forests near Innisfail. "Downey Creek is regarded as one of the most important rain forest sites in Australia and was nominated for the register of the National Estate by the council in 1976," he said. The rain forests there were on basalt soils with a higher natural fertility than most of the other remaining forests, which occurred on granite and metamorphic soils. "Logging will bring major intrusions with roads, tracks and log dumps," he said. This would destroy the forests in their present state and could also introduce a form of patch death, or dieback, he said. [Excerpt] [Brisbane THE COURIER-MAIL in English 29 Aug 81 p 28]

**NEW-FARM DEVELOPMENT**--The development of new farming land is a billion-dollar industry and rivals mineral projects in contributing to WA's economy, says the Minister for Lands, Mr Wordsworth. He said in press release that in the past 20 years 1000 farms created in the Esperance shire alone were now worth \$500 million. In calling for more land releases in its area, the Esperance Shire Council had said that for every 10 new farms created gross turnover rose by \$1 million. Collectively, new-land farmers rivalled mineral projects in the vigour of their achievement. Mr Wordsworth said that the Government was determined to maintain the impetus of the biggest development programme in WA's history. [Excerpt] [Perth THE WEST AUSTRALIAN in English 31 Aug 81 p 34]

AFFORESTATION AID TO PRC--Hervey Bay--Queensland has agreed to provide its own foreign aid to China by seconding forestry experts there to assist with re-afforestation. State Cabinet decided yesterday to send two Forestry Department employees there for three years following an approach from the Peking government. [Text] [Brisbane THE COURIER-MAIL in English 1 Sep 81 p 3]

LEAD POLLUTION OF LAND--A study of pollution caused by lead in petrol suggests that vast areas of countryside near cities are contaminated by car exhausts. The findings announced yesterday by the CSIRO Division of Soils lend support to the decision by transport ministers to ban lead in petrol in new cars by 1986. The study made on farms around Adelaide showed that lead from car exhausts was three to four times more plentiful in topsoil than natural lead. The team suggested that much of the lead found in food, which was earlier believed to be a natural ingredient, comes from petrol. Opponents of lead in petrol claim the lead found in soil comes from car exhausts, but the motor industry claims it occurs naturally. The CSIRO team applied a new method for studying lead in soil which can show where the lead comes from. The method measures the ratio of different kinds of lead in the sample. Previous studies claimed most lead from car exhausts travelled only 100m from highways, and did not contaminate wide areas of farm land. The CSIRO team says some lead particles spread up to 50 km from urban centres, and "represent a significant proportion of the total lead in the topsoil." [By Nicholas Rothwell] [Excerpts] [Canberra THE AUSTRALIAN in English 2 Sep 81 p 2]

MELBOURNE, SYDNEY SMOG--A CSIRO study on the photochemical smog which hovers over the country's big cities explains why air pollution is worse in Sydney than in Melbourne. It says that Melbourne's air, although by no means clean, is kept fresh by the bayside breeze. The study, by the special CSIRO Urban Air Pollution group based near Melbourne, pioneered the use of aerial surveys of the smog clouds to check the extent of the pollution. Regular flights performed over several months by the group, under the leadership of Mr Tony Evans, tracked the progress of the smog, sampled the cloud and studied how it was spread and dispersed by the wind. The final results are to be released this month. Melbourne's smog was found to be less thick than Sydney's because the geography of the city allowed the wind to disperse the clouds more easily. Even so the pollution is well above the recommended maximum level set by the Victorian Environmental Protection Authority. The State EPA want to clean up the skies of Melbourne so smog levels of 100 parts per billion of air are reached on only three days a year but at present this level occurs on eight days each year. In Sydney smog levels are higher than this recommended level on 50 days each year. [Text] [Canberra THE AUSTRALIAN in English 2 Sep 81 p 2]

CSO: 5000/7502

DACCA FOR RATIONAL MANAGEMENT OF GANGES WATERS

Dacca THE BANGLADESH OBSERVER in English 30 Aug 81 p 1

[Text] Paris, Aug 29--Bangladesh underlined the importance of national and co-operative water management among co-basin states at a ten-day conference on scientific and rational management of water resources concluded here today, cables ENA special correspondent.

Jointly organised by UNESCO and WHO the conference was participated by most member nations of the United Nations, particularly those from Asia and Africa, grappling with the problem of sharing water of the common rivers.

Mr Muniruzzaman, Additional Secretary, Ministry of Irrigation and Water Resources led Bangladesh delegation to the conference.

Explaining Bangladesh's scheme for rational management of the Ganges basin, Mr Muniruzzaman pointed out plenty of water is being wasted upstream of this great river system. If this waste can be arrested by rational recycling of water supply in the delta area of the Ganges basin will immensely increase making it possible for Bangladesh to expand her irrigational network for augmenting agricultural production.

Mr Muniruzzaman informed the conference of the tremendous silt intrusion into the river system of south-west region of Bangladesh because of the irrational water management and diversion for non-economic purposes upstream the Ganges basin.

Underscoring the need for regional cooperation for optimum utilization of available water resources for productive purposes, Mr Muniruzzaman suggested comprehensive study of the water balances on individual river basin. He said individual river basin is the most rational unit for the purpose of planning of use of water of a river.

Bangladesh's proposal elicited encouraging response from most participating states, particularly from those who are struggling with the problem of cooperative management of common rivers. Bangladesh's proposal was considered very reasonable by members of the conference.

CSO: 5000/7000

## BRIEFS

SOIL EROSION DEPLORED--India is losing six crore tonnes of fertile soil every year due to soil erosion and the market value of minerals contained in this washed away soil alone is estimated to the level of Rs 700 crore, according to Dr R. L. Singh, director of National Park, Dudhwa, says PTI. Mr Singh, an eminent environmentalist, who was speaking at a seminar organized by the Kanpur University at Lakhimpur Kheri, yesterday said, the sinful neglect of our soil is making us poorer every year not only in terms of loss of minerals but its more frightening consequences would be the choking up of our major dams constructed during the last three decades with an investment of Rs 10,000 crore. Analysing the component of national environment, Dr Singh said all the four components--physical biological, ecological and cultural were seriously threatened due to our lack of literacy or environment and growing human and cattle population. By 1990, he said there would be about 80 crore of human beings and 50 crore of domestic cattle to be fed by the same soil which we are so carelessly eroding away every year. [Text] [New Delhi PATRIOT in English 7 Sep 81 p 8]

CSO: 5000/7068



## NEED TO MONITOR LOCAL ENVIRONMENTAL SITUATIONS SEEN

Karachi DAWN in English 25 Sep 81 Supplement p I

[Article by Malik M. Siddiq: "Slow Poison"]

[Text]

Pakistan is facing environmental problems typical of most developing countries. Most diseases and deaths are caused by one or the other perils of environmental pollution. Overpopulation and poverty are as bad here as anywhere in the world. More than fifty per cent of housing in larger cities comprises slums and near-slums where living conditions are sub-human.

Slums are multiplying, clean air is getting rarer, while crazy traffic and noisy vehicles add to the existing nervous tensions.

Drinking water in the thickly populated large cities is often a health hazard and the municipal authorities frequently suggest to the consumers to boil it before use. The drainage system is under pressure and clogging gutters and reeking cesspools contaminate the atmosphere.

In villages, people live amidst cattle and stagnant waste. About one-third of our agricultural land is afflicted with water logging and salinity, while the rest suffers from erosion, denudation and desert formation which are increasing at an alarming rate.

Chemical fertilizers and pesticides also are making their impact on the air and water around us, as well as on livestock, fisheries etc.

Amongst the categories of pollution, atmospheric pollution received earliest attention in Pakistan. The first scientific survey seems to have

been sponsored by the Pakistan Council of Scientific and Industrial Research in Karachi towards the beginning of seventies to measure smoke emission from road vehicles. It showed that the bulk of what was ejected into the air by the exhaust of motor vehicles was carbon dioxide and water vapour, which although harmless in themselves, became deadly when mixed with carbon monoxide.

Various kinds of other fumes are also poured out on the roads and streets of our cities by the incomplete combustion of petrol.

Another survey carried out by the PCSIR in 1974 indicated that the concentration of carbon monoxide at some of the busy roads of Karachi exceeded 20 parts per million - when a concentration of 10 ppm is considered a health hazard.

Our large cities are confronted with the atmospheric pollution but the situation in Karachi is alarming. The keynote speech at a symposium of the Scientific Society of Pakistan dwelt on the hazards of toxic chemicals whose visibly damaging action could be observed in the tarnishing of the white marble of the Quid-e-Azam's mausoleum.

## Noise

There is another aspect of pollution viz, noise, which has not received the attention it deserves. Reduction of noise in industry obviously reduces the hazards to its employees and thus improves efficiency and safety of their operation.

A recent survey of some industrial units in Karachi showed that nerves of a large number of employees had been affected by noise

while some complained of hearing loss. Existence of factories in the populous parts of the cities is also a nuisance to the residents.

Motor and other workshops which have sprung up on roadsides, narrow streets and in parts of the residential houses create tremendous noise.

There are a number of steel mills in Badami Bagh area of Lahore where the constant noise of hammering is a patent source of inconvenience to the residents who cannot even have a sigh of relief at night.

Besides the factories, there are other sources of noise pollution. The bus drivers delight in blowing their horns hoarse.

The authorities have been trying for years to curb the excessive noise from rickshaws and went to the extent of designing silencers for this purpose. But the absence of adequately defined legal backing has thwarted their attempts.

Pakistan has already begun to feel the economic impact of sea pollution. Industrial and domestic waste is reported to have driven fish deeply out to sea, resulting in depleted catch. According to a report by the KDA's Master Plan and Environmental Control Department, Karachi Harbour is being polluted

by the uncontrolled discharge of sewage into the sea from different parts of the city, including the Industrial Estates.

The major portion of the discharge is composed of highly toxic matter contained in the mix of industrial-cum-domestic effluents, including those from the abattoir. No adequate system for the disposal

of the industrial wastes has so far been introduced here. The waste and filth are dumped into the water channels, including rivers which discharge into the sea, and thereby contaminating the sea water also.

The fight against pollution in Pakistan, whatever exists of it, is in an extremely disorganised and muddled state, and is not making much progress. Despite the fact that the subject of environmental control is included in the Concurrent Legislative List of 1973 Constitution, no Federal or Provincial law has been promulgated so far.

Realising their constitutional responsibility and the importance of better environment, the Government of Pakistan constituted a National Committee of experts to study the environmental problems in the country and to suggest their solutions. The Committee did the stupendous task of drawing up a comprehensive report which they submitted to the government in 1974.

The Committee dwelt on a number of environmental aspects, including population, human settlements, transport, water supply and sanitation, industries, agriculture, hydrology, marine and fishery resources, wild life, public health and environmental education and training. Their recommendations included the establishment of a separate Division of Environment at central level, a National Council of environment at the centre, environmental cells in the Provincial Governments and a cell of environmental protection in each municipality.

#### No laws

Except for the creation of a separate Environment and Urban Affairs Division at the Federal level, no other recommendations have been given concrete shape.

Long time back the Federal Government proposed drafting a law on National Environment Protection but the draft has not been turned into an enforceable enactment for various reasons till today. Only recently, the Federal Minister for Housing and Works informed the International Seminar on Environment and Urban Development held at Islamabad earlier this month that a draft of law on the protection of environment was ready for enactment.

In 1974, the Punjab Government drafted a legislation to control pollution, which received approval of the provincial cabinet and which was described by the then Chief Minister as a landmark "in progressive administration". But it never became part of the statute book.

Half-baked efforts were employed for local levels by way of including a section on pollution in the local government laws.

It was made optional function of an urban local government institution to frame bye-laws to take anti-pollution measures. No local authority has enforced specific bye-laws so far, for lack of technical knowledge, because no guidance was provided to the local councils by the government.

In the final draft of the Fifth plan (1978-83) the chapter on physical planning and Housing made a specific mention of environment which is reproduced as under: "To arrest the pollution of air and water, and to preserve and protect the environment from degradation, necessary legislation will be enacted in the country during the plan period. The institutions dealing with the environmental problems will also be strengthened during the Fifth Plan." No legislation, Federal or provincial has been enacted so far, nor the institutions dealing with the environmental problems seem to have been strengthened, while half the Plan period has already expired.

In Karachi, there is a whole-time Environmental Control Department of KDA which has carried out numerous useful studies on the subject but it has not been able to create institutional impact to abate pollution hazards in the city. Newspapers welcomed the establishment of Institute of Environmental Studies in the Master Plan Department of KDA, hoping it would organise training courses to impart scientific knowledge to those responsible to fight various types of pollution. But this institute also does not seem to have made any headway to achieve its objectives.

The subject of environment is of a complex nature and needs comprehensive treatment and probably its complexities have been causing delay in the promulgation of a formal law to control the environment, but a legal cover to all such activities is essential.

The law would also help in creating a statutory institutional framework for conceiving and launching

environmental programmes in an organised and integrated manner. Without waiting further, the law in the present draft form may be enacted and further eventualities could be catered for in due course by amending the law from time to time.

Although the Constitution also concurrently authorises the provincial governments to make their own laws on ecology, for the sake of uniformity in policy and action, the Federal Government should promulgate the necessary law which could also include in its orbit the Cantonment Boards for purposes of local level coordination.

As recommended by the Experts Committee there should be a National Council of Environment, but at the provincial level there should be Environment Boards to monitor the efforts of environmental control while at local level, instead of cells in Municipal Committees, there should be local committees of environment protection comprising representatives of concerned departments and agencies, including local industries and also of Municipal/Town Committees and Cantonment Boards (where they exist). There should be an anti-pollution cell in every District Council.

It goes without saying that community backing is essential for the success of any worthwhile programme of anti-pollution which has been lacking in Pakistan and many other developing societies. In most countries, local government is responsible for a number of functions directly related to human environment, such as refuse collection, traffic regulations building control, slum clearance, water supply, and town and country planning, to name but a few. In the local councils.

Besides making Environmental Control as a compulsory function of the local councils, it should be enjoined on them to launch educative programmes by organising neighbourhood or Ward meetings. It is only through widespread public awareness and the concerted efforts of the community as a whole that we would be able to protect, preserve and enhance the quality of our environment.

The efforts employed by Government departments and agencies to fight pollution need to be supplemented by those available in the non-government sector. The expert level committee on Human Environment also recommended that

"non-governmental organisations should be encouraged to discuss various aspects of Human Environment and assist Government in the implementation of its plans, including publicity and dissemination of environmental information and knowledge."

It requires the intense collaboration of the best minds among biologists, engineers, planners, physical scientists, sociologists, economists, journalists, community leaders, and the public at large to undertake the responsibilities of environmental protection.

CSO: 5000/4503

ENVIRONMENT SEMINAR'S RECOMMENDATIONS

Karachi DAWN in English 18 Sep 81 p 13

[Text] Islamabad, 17 Sep--The participants of the three-day International Seminar on Environment and Urban Development, made elaborate recommendations on environment, urbanisation, urban development and housing.

Following are the recommendations made by the participants on environment.

--Promulgation of a comprehensive national environmental protection legislation should be expedited.

--Work should be undertaken to prepare a comprehensive national environmental protection policy.

--While the legislation and policy are in a process of formulation environment impact assessment statements should be introduced for all new major development projects.

-A national advisory committee under the minister in charge of environment and representing provincial governments and experts should be constituted to provide policy guidelines on environment and also support with laboratory data.

--Quality assessment of the environment being carried out by universities and research organisations should be encouraged by strengthening their R and D bases through provision of adequate funds.

--Environmental awareness should be created at all levels and suitable courses on environmental studies should be introduced even at the primary level.

Regarding urbanisation, the participants felt that current trends of population growth, urbanisation and development imbalances between the urban and rural areas, demanded that national strategies be re-examined. They felt that existing policies have failed to achieve a satisfactory equilibrium between the rural and urban areas.

In their view the policies have placed heavy pressure on the urban areas and widened the disparities. They recommended that:

(I) The directive of the President and the Federal Cabinet regarding preparation of a national urbanisation policy by a high-level committee should be carried out on a priority basis. National and international experts should be associated in this exercise.

(II) Introduction of regional planning as an instrument to balanced urban and rural development should be examined by the government. A beginning can be made at the district level which will require minimum institutional readjustment.

(III) The existing institutional set up at the federal, provincial and local levels lacks coordination and suffers from overlaps in functions. An expert committee should be set up to study the system in detail and recommend its appropriate restructuring.

(IV) The Environment and Urban Affairs Division should be the focal point in all matters which influence environment, housing and urban development.

(V) The existing staff position is grossly inadequate to undertake any meaningful planning, implementation and monitoring work. The provincial departments dealing with housing and physical planning and the local agencies should be strengthened and provided with necessary planning staff.

(VI) To reduce the pressure on large cities, the small and intermediate settlements should receive development priorities. This level of settlements has been neglected in the past and is capable of productively absorbing sizeable proportion of migrant population from rural areas.

#### Urban Development

With regard to urban development, the delegates observed that the existing deficiencies in the urban areas of the country were the result of institutional inadequacies and conflicts, poor management and lack of forward planning. They felt that the condition of cities can be greatly improved. Following are the recommendations made by the participants regarding urban development:

(I) The available resources, human, material and financial, are optimally utilised. As a first step, institutional coordination and effective city management should receive priority.

(II) In view of spiralling land prices and future development demands land banking offers a possible solution. The right of eminent domain should be exercised by the government and, if necessary, the Land Acquisition laws suitably amended.

(III) The concept of gross-subsidy has a lot of promise in providing relief to the low-income group and should be fully utilised.

(IV) Formulation and promulgation of a Federal Physical Planning Act should be seriously considered, in view of the inability of the Planning and Development agencies to exercise land use control on agencies under administrative control of Federal or Provincial Governments.

(V) Federal Government should assist the provinces and local agencies to strengthen their planning capabilities.

(VI) Priority in urban development should go to lower-income population.



(VII) The Seminar strongly endorsed the Government decision made to regularise Katchi abadis and to confer proprietary rights and recommended that it should be supplemented by intensive efforts to improve and develop those abadis with active community participation.

(VIII) Advance planning should be undertaken to absorb new migrants to the city.

(IX) It will be advisable to prepare a national manual on standards. The existing standards (infrastructure, and building) should be re-examined from the point of view of suitable "sealing down" to reduce development posts and to bring facilities within reach of the population.

(X) Private sector has vast resources, personnel and capabilities to supplement Government efforts in urban development. Their active participation should be encouraged with appropriate safeguards and unnecessary institutional bottlenecks removed.

(XI) Rural development activities in the field of human settlements should be strengthened.—APP

CSO: 5000/4501

ALTERING MAKE-UP OF ENERGY RESOURCES TO CONTROL POLLUTION

Beijing HUANJING BAOHU [ENVIRONMENTAL PROTECTION] in Chinese No 3 1981 pp 1-5

[Article by Zhao Zongyu [6392 1350 3403]: "Altering the Composition of Urban and Rural Energy Resources to Control Environmental Pollution"]

[Text] In recent years, because of the imbalance between the buildup for production and environmental protection, large and small industries have increased in number, and pollution of large areas in cities and villages is becoming more serious day by day. Especially because the composition of energy resources (fuel) is irrational, pollution brought about by the "three wastes" and energy losses have been very great, and must be solved. Energy resources and the environment are related to the building of modernization and the people's health and they are very important. Therefore, as the national economy is being further readjusted and during this period of further political stability, in order to stand firmly in the buildup of production and progress steadily, it is urgent that the two fundamental jobs of energy and environment be done well. In the following, several opinions are proposed as personal views as reference for concerned departments.

(I) The Question Concerning Alternation of the Composition of Energy Resources in Cities

Cities are the points of most concentrated human activity, they are also the places where science and technology and culture are most concretely manifested. Whether the composition of energy sources in cities is rational or not, whether it is advanced or not, whether it is beneficial to the lives of the people and the labor environment are all gauges of the level of modernization of energy resources in cities. Our nation's cities use coal as their main source of energy. Coal constitutes over 80 percent of the cities' energy resource, and most of it is directly burned. The rate of utilization of heat is low (1<sup>st</sup> percent), the loss is serious, and massive amounts of harmful substances and trace amounts of harmful substances including radioactive elements such as radium, uranium and thorium and other poisonous substances are released. The pollution is frightening, and urgently awaits reform. In urban reform plans to be launched soon, energy should be the key point and it should be taken into consideration. The goal of reforming the energy resources in cities is to use clean or cleaner energy resources to replace dirty energy resources, to use energy resources that are convenient to transport and to store to replace energy resources that are inconvenient to transport and to store, and to use highly efficient or more efficient sources of energy to replace energy resources with a low efficiency.

The energy resources that have not been purified or processed and which can only be used once such as the various solid combustible substances, crude oil and natural gas that contain higher contents of sulfur, nitrogen and oxygen compounds are unclean, inconvenient and uneconomical energy sources. Purified and converted reusable energy sources and thermal electric power, hydroelectric power and nuclear power stations that have implemented effective safety measures, environmental protection measures and ecological protection measures are clean, convenient and economical sources of energy. Problems of environmental protection and economic problems related in varying degrees and in general and such new sources of energy also exist. There are many specific ways to reform the composition of energy sources in cities. Those already known are mainly the following:

1. Gasification of coal as an energy source for civilian use in cities.

Practice over a long time at home and abroad has proven that the method of altering the composition of energy sources in cities that is recognized by all, that is technically most mature, that is economically most feasible, that is most efficient for environmental protection (large areas) is coal gasification. Abroad, in industrially advanced nations, the popularization of civilian coal gas is above 85 percent (it is 98 percent in Japan, it is above 85 percent in the United States and France), and large and medium sized cities have all basically established coal gasification for a long time. Some highly modernized cities are also developing electrification. Electric power for civilian use constitutes 30 to 40 percent or more of the total amount of electric power. In our nation, the population using gas is only about 10 million people, only 1 percent of the 1 billion people. Of the 224 large and medium cities so named throughout the nation, only about 60 have relatively outdated coal gas or oil gas facilities and supplies of liquified petroleum gas. The gap between our nation and foreign nations is large. The quality of the city environment is dropping day by day, energy in cities is wasted day after day and year after year. The state's city construction departments have already paid more attention and gasification in cities is beginning. As the national economy is being further readjusted and at this moment when investment by the state and provinces and cities is difficult, if the present method of unified arrangement by the state and carrying only about key points is not changed, gasification will be delayed further and may be difficult to realize. It is suggested that the General Bureau of City Construction of the State Capital Construction Commission organize the appropriate provincial, municipal and design departments to establish a city coal gasification construction company, cooperate with each other, use coal gas shares and coal gas loans to solicit funds and propose new types of designs varying in scope for coal gasification standards in cities, accept commissioned designs for city gasification and construction so that the work of gasification in cities can progress steadily and according to plans which may use some, but not a lot of the state's construction investment, so that large area pollution in key cities can be quickly controlled and the energy waste in the cities can be eliminated early.

2. Coal gasification for urban industrial energy. Our nation's industrial consumption of energy constitutes over 65 percent of the total consumption of energy. Large and small industries in the cities are relatively concentrated. Industries in large cities use 75 to 80 percent of the energy. The amount of primary energy directly burned in the various types of boilers throughout the nation reaches over 50 percent of the total energy consumption of the whole nation. Among them, 200,000

industrial boilers directly burn 200 million tons of coal, the average thermal efficiency is only about 50 percent. The nation's boilers burn 25 million tons of petroleum. After the State Council firmly demanded to substitute coal for oil, during the past two years, the burning of oil has been lessened by 5 to 6 million tons. But the oil burned away by each power network of the electric power departments is still about 13 million tons, which urgently needs replacement [by coal].

According to estimates, in 1980, the nation burned 15. million tons of petroleum (including about 7 million tons of crude oil). This amount should also be replaced [by coal] as much as possible. Because the composition of industrial energy resources is not rational, the resulting energy waste and problems of environmental pollution have become more serious and they should be reformed urgently. Coal gasification of energy resources (fuel) for industrial boilers, heating furnaces and kilns is a worldwide trend. Our nation has more coal than oil and it is an even more urgent task. Coal gasification of industrial fuel is different from coal gasification for civilian use. Civilian coal gas uses mainly medium heat value coal gas (4,000 kilocalories/cubic meter). Coal gas for industrial use can be low heat value coal gas (1,000 to 2,000 kilocalories/cubic meter). After establishing low heat value coal gas, combustion gas turbines/steam turbines can be used to establish a foundation for joint cyclic power generation to increase the thermoelectric efficiency to 40 to 50 percent and to create conditions for the development of electrification of energy resources in cities. In addition, to solve the problems of environmental pollution by oil burning boilers and heating furnaces and the shortage of oil resources, besides coal gasification of energy for industrial use, coal liquefaction is also in the research and experimental stage (with or without transition through COM coal and oil mixtures). Power stations burning oil are not interested in coal gasification mainly because they are unfamiliar with the operation and they have difficulty handling such operation. If coal gas supply companies can be established with investment by the power industry or with bank loans and if they can sign supply contracts with the power plants, then under the guidance of the national policies of limiting the use of oil for fuel because of the shortage of oil resources, the power industry will be glad to cooperate and do the work of burning gas well.

3. The questions concerning the supply of gas for civilian use utilizing natural gas, gas produced in oil fields and liquefied petroleum gas must be considered first in regions which have oil and gas fields, oil refineries and petrochemical plants. According to surveys conducted by the Comprehensive Survey Committee of the Academy of Sciences, the use of natural gas to supply civilian use can save about three times as much coal as boilers. The use of liquefied petroleum gas to supply civilian use can also save about three times as much coal as boilers. Therefore, it is far more economical to use these energy resources to supply civilian use and they will be more beneficial to urban environmental protection. This can only be realized when concerned units increase their understanding of the importance of environmental protection give play to the great cooperative spirit of socialism, and there is vigorous support by state policies (including energy price policies)

4. The massive amount of low temperature surplus heat, including cooling water of 40° C to 50° C which is relatively difficult to utilize, waste steam, surplus flue heat (converted to low temperature water) can all be used in the network of pipes supplying heat for civilian use and for medium and small industrial and commercial



enterprises in cities. Obtaining heat sources without increasing the supply of fuel will greatly benefit energy conservation and environmental protection in cities. This can be realized only by developing the superiority of socialism and if the state or the localities establish some regulations for energy conservation.

5. New energy resources which may be utilized should be appropriately developed and the composition of energy resources in cities should be improved. Our nation has many regions which have exploitable geothermal energy. Over 2,700 localities with exposed geothermal energy have been discovered throughout the nation. Geothermal energy discoveries have been made in each China, the northeast, the Hanzhong region, Xizang, Yunnan, Guangxi, and Guangdong, Fujian, Hunan, Xichuan and Taiwan provinces. Some are in cities and suburbs (such as Beijing and Tianjin cities) which are convenient to utilize. Our nation's solar energy resources are also relatively rich. Most of the regions have over 2,200 hours of sunshine throughout the year. Collective facilities in cities (including offices, residence halls, enterprises) can utilize solar energy to provide heat, for cooling and air conditioning. Most of the new energy resources are not concentrated, the supply of energy is unstable, the investment in facilities is large, large scale utilization is still difficult but they are suited for small scale utilization and they are being developed at an accelerated rate at home and abroad. Utilization of oceanic energy, wind energy and biological energy and such energy resources by the cities is limited, but they are more suited for utilization by farm villages. But utilizing garbage for generation of electricity or for gasification in cities is a necessary measure for environmental health. Such facilities have been established a long time ago abroad and the municipal authorities should actively realize this.

6. Establishment of nuclear power stations in key cities, especially large cities that have a shortage of coal, less electric power, no oil and where the environmental problem is serious must be actively realized so that the composition of energy resources in cities can be reformed to advance towards electrification and gasification. Nuclear power stations have already proven now that the technology is mature, they are economically feasible, they are clean and safe, and they can provide energy on a large scale. Our nation has a relatively rich reserve of uranium resources that have already been discovered. Also, we have already trained some reactor research, design and construction teams, and we have the basic capabilities to develop nuclear power generation with our own efforts. Economically, investment in nuclear power is generally 50 percent higher than the investment required for building thermal power stations, but with the fuel supply system of the thermal power stations, the investment may even be larger. Nuclear power generation may cost 20 to 50 percent less than thermal power. The greatest benefit is that building one nuclear power station with a capacity of 300,000 kilowatts can save 1 million tons of coal a year, reducing the amount of shipment of 1. million tons of coal and 200,000 to 300,000 tons of ash and dregs. At the same time, nuclear power stations do not have a combustion process, there is no release of chimney gases and harmful substances. The effects of radioactivity under a series of safety measures is negligible, several times less than the radioactive pollution from uranium, thorium and radium contained in the unsettled ash produced by a coal fired thermal power station of the same scale and similar to the radioactive pollution released by an oil fired power station.

7. Alteration of the composition of energy for passenger transportation in cities should not be delayed. Passenger transportation in cities develops as



modernization of cities develops. Motorized vehicles continue to increase, the energy consumption continues to rise, and pollution becomes more serious. Pollution due to exhausts from vehicles with internal combustion engines in cities mainly pollutes the air several meters above the road surface and it is extremely harmful to the city residents. According to statistical data compiled by the engineering design institute of the Tianjin City Administration, the amount of transportation in cities has a definite proportional relationship to the value of industrial production, the square meters of capital construction and light industrial products. Abroad, private vehicles develop rapidly, because of a shortage of petroleum, this development has reduced, and the benefits of energy conservation of mass transportation is being advocated, but old habits are difficult to change and the results cannot be predicted easily. Our nation's social system is different, mass transportation is the main means of transportation and it can more easily be realized. But according to understanding, vehicles for private use by each department are developing quickly and there are already over 1.35 million units. The rate of utilization of private vehicles is low, their consumption of energy is 40 percent to 50 percent higher than special transportation vehicles and they constitute 87.7 percent of the nation's total number of vehicles. In Beijing, there are already 200,000 to 300,000 internal combustion vehicles of various types and the annual growth rate is about 10 percent. Annual consumption of gasoline is about 580,000 tons. The pollution by automobile exhaust is indeed serious. Pollution in Shanghai, Tianjin and such large cities is not less than Beijing. The ways to solve this problem are as follows: (1) Trolleybuses, electric subway trains, and elevated electric trains can be used so that electricity can replace oil fuel, thus altering the composition of energy for passenger transportation. (2) Collective traffic management can be strengthened, public transportation and collective transportation should be expanded as much as possible. This can increase efficiency by over onefold. (3) Bicycle lanes or traffic regulations for bicycles should be established to replace motorized power by human power and to use food energy to replace oil energy. This can increase the energy efficiency by several orders of magnitude. (4) The fuel itself can be altered to reduce loss during combustion, such as utilizing active-combustion, highly refined petroleum fuel for internal combustion engines. (5) Non-polluting or slightly polluting petroleum substitutes can be used as fuel, including gasohol produced from coal as the raw material, methane or ethane, or mixed alcohols. (6) The gases produced by refineries and petrochemical plants as by-products can be used as raw materials to produce such high octane additives which have a high purification power as methyl tertiary butyl ether (MTBE) and tertiary amyl methyl ether (TAME) can improve efficiency and can also prevent pollution. (7) An ideal and clean fuel for internal combustion engines is liquefied hydrogen which can be used as a substitute for gasoline. Hydrogen resources are plentiful and it can be obtained anywhere, but the cost of production is high and this is very difficult to realize. In recent years, because of the development in hydrogen manufacturing technology and the jump in oil prices, according to informed sources, some nation's cost for each liter of liquefied hydrogen has approached that of the same volume of petroleum. In the long run, the use of liquefied hydrogen as fuel is technically and economically feasible and also suits the demands of the time, and it may even be unavoidable.

In general, to enable city people to enjoy a healthy life and working environment and to elevate the efficiency of utilization of energy resources to a rational level, the composition of energy resources must be altered. To assure a safe,

steady, economical and effective supply of energy resources in cities, measures should be suited to local circumstances, the structure must be multivariate, there must be comprehensive utilization, there must be a major source and secondary sources, priorities must be assigned in order of urgency, and the future must be combined with the present in the development and realization of the goals.

## (II) Alteration of the Composition of Rural Energy

The several major problems related to rural energy resources that require urgent solutions are as follows:

(1) The supply of energy to the 800 million farmers still has to be arranged. There are 80 to 100 million farm families that lack fuel for burning three to five months out of a year. The problem in farm villages of "worrying not about what is in the pot but what is underneath the pot" must be urgently solved. (2) Because of a lack of fuel, farm villages mainly depend upon plant energy such as straw, dung, wood and grass for their energy, thus fertilizers of organic matter, nitrogen, phosphorus, potassium cannot be returned to the fields, the soil texture becomes progressively weak, per mu yield has to be maintained by chemical fertilizers, and the situation is critical. (3) At the same time, the make-up of energy resources in farm villages is too irrational. Tools to harness energy are very backward, efficiency is too low and the waste is too great. For example, the thermal efficiency of the stoves in farm villages is only 10 to 12.5 percent. This must be changed. (4) Houses in farm villages are simple, the stoves are primitive, and pollution from burning is serious. (5) Because of a shortage of burning fuel, grasslands and mountain forests have been felled and exhausted, and the ecological balance has been seriously destroyed. (6) Also, processing enterprises of agricultural sideline products have continued to develop, small industries in cities have moved to the countryside, energy resources and environmental protection were not emphasized, and all of these are increasingly threatening the health of farmers and the ability of natural purification in farm villages. In my opinion, these suggestions can serve as reference in changing the composition of energy in farm villages and in increasing the efficiency of energy resources to give us back our "green ocean."

1. The state must take charge of the supply of energy affecting the 800 million farmers and environmental protection, organize concerned sectors and related scientific and technical personnel to study and establish a far sighted and practical strategic blueprint and policy guidelines for rural energy and environmental protection, and draw up a short term (for example up to 1990), a medium (up to the year 2000) and a long range (up to the year 2020) draft for rural energy and environmental protection based on the above. Some people have suggested that the State Energy Commission and the State Agricultural Commission organize studies in environmental protection strategy, policies and plans. Each province and city should also establish corresponding agencies to push forward such work.

2. The state and the localities must be determined to assign a part of the commercial energy resources (at present, this is mainly coal fuel) to communes and brigades for cooking so that straw, animal manure, firewood and such organic substances can be returned to the fields and for increasing the production of useable methane. According to surveys conducted by the agricultural engineering design

institute and the Anhui provincial survey of the HuaiBei region, these measures can retain fertility of the soil and can also conserve the use of chemical fertilizers, reduce energy consumption for massive production of chemical fertilizers, they can also protect mountains, forests and plants, prevent leaching and prevent the land from becoming sandy. According to estimates, the gain from increased yields and from conservation of energy resulting from these measures is sufficient to more than balance the transfer of commercial energy. The precious experience should be quickly and energetically propagandized, summarized, popularized and realized.

3. Rural communes and brigades are scattered throughout the entire nation, the energy resources are different, the composition of energy resources should be suited to local circumstances and combined with the actual situation and be selective. At the same time, farming families are scattered, the dwellings and facilities are simple, the experience in using energy is insufficient, the reward from labor is low, the conditions for energy supply should be taken care of. Therefore, the supply of energy to farm villages should be multivariate combination and comprehensive utilization, there must be primary and secondary aspects, the energy must be safe and clean, convenient to use, and it must also be economical and rational and beneficial to conservation. For this, (1) besides strengthening management and increasing the efficiency of energy production by the existing small hydroelectric power stations, small coal kilns and small methane pits, they should also be continuously developed to expand the energy supply to communes and brigades. It is known that our nation has a total of about 70 million kilowatts of small hydroelectric power resources that can be exploited, and those that have already been exploited constitute only about 10 percent. Coal and other combustible mineral resources are found in each province throughout the nation. There are now 1200 counties which have built over 20,000 small coal kilns, 18,000 of which belong to communes and brigades. They produce about 100 million tons of coal. The whole nation has built about 7 million methane pits, but there are one-third that require maintenance and repairs and are "sick pits." (2) Clean bottled fuels such as liquefied petroleum gas are most suitable for use by scattered families in farm villages. Liquefied petroleum gas should be transferred to the farm villages for use when coal gasification in cities is developed and when the supply of electric power to cities can be increased. (3) The farm villages have better conditions for small scale utilization of solar energy, geothermal energy, wind energy, tidal energy. These are all inexhaustible and they can regenerate new energy. But the investment in the facilities for the utilization of these energy resources are frequently larger, so simple, easy, economical and practical methods must be studied. These energy resources can only be popularized under the massive support of national policy. (4) Solar energy is the most significant among the rural energy resources that can regenerate new energy and that has the best conditions for development. Over two-thirds of the nation have over 2,200 hours of sunshine yearly. Solar energy resources are very rich. If solar energy can be utilized well, a lot of improvements can be made in the rural energy supplies and in environmental health. Solar energy is similar to other regenerative natural energy resources. The energy resource is too concentrated, the supply is unstable, and the facilities for utilization require large investment. Under ordinary conditions, it is very difficult to compete with ordinary energy sources, but under specific conditions it can serve to supply heat and used for cooling and air conditioning. Our nation already has solar energy powered heating facilities. It is suggested that



studies and explorations in the use of solar energy in rural areas should be launched on this basis to first design an economical, practical and simple solar energy heating facility suitable to the conditions of our nation's rural areas.

5. [sic] "Green energy resources" should be actively developed to solve the problems of rural firewood and regional environmental protection. For example, timber forests, protective forests, economic forests, firewood forests, and bamboo forests can all provide energy for farm villages through photosynthesis and can improve the ecological balance. At present, 5 percent of the total world energy consumption is provided by timber (mainly used by developing nations for domestic firewood). Timber is a renewable energy resource, and if managed well, it is inexhaustible. Because of the energy crisis, "green energy resources" are gaining more and more attention and they are being developed. Research in dense planting of fast growing firewood forests and oil bearing plants is being carried out and forest farms are being established, the age-old dry wood distillation industry has turned to utilizing remnants from felling and processing to manufacture synthetic gas and synthetic alcohol, and other such liquid fuels. Our nation now has 55 million mu of firewood forests, there are another more than 1 billion mu of wasteland suitable for afforestation. With the addition of small plots suitable for afforestation and the "four sides" for planting trees, the condition for developing firewood forests is very good. According to estimates, the yield of various firewoods in our nation totals about 160 billion jin, this amount can provide the firewood needs of the 800 million farm village population for over two months. It is known that the forestry ministry has drawn up a plan to develop forest wood. After the plan is realized, 300 billion jin of firewood can be harvested each year and this amount can solve the problem of firewood needed by a rural population of 900 million.

6. Rural energy must not exclude coal gasification. The processing industry for agricultural sideline products in communes and brigades is developing. Small industries are moving out of the cities to the suburbs. Some concentrated regions of small enterprises will be formed and following this will be regional pollution and waste of energy resources. The best strategy is to suit the measures to the locale and utilize local coal resources or coal resources of nearby regions to build coal gas facilities and utilize coal gas generating furnaces that use air as the gasification medium. The heat value is about 1,200 kilocalories/meters<sup>3</sup>, the structure of the furnace is simple, operation is safe, management is simple, and gas generators from small chemical fertilizer plants can be easily converted. It is possible that many gasification furnaces of this type are being used in large factories and can be transferred.

7. Substances abandoned by the processing industry for agricultural sideline products such as waste vegetables, fruits and meats left after processing are all combustible organic matter. They can be provided to produce methane or gasification or directly burned to produce heat and electricity. If the cities do not establish their own thermal power stations by utilizing city garbage, the garbage can be sent to the farm villages for treatment. The cities and villages can work together to change useless things into things of value. In the future, after straw is returned to the fields, the need for organic fertilizers by agriculture will lessen and abandoned substances from processing of rural products can also fill the need as raw combustible materials for gasification and power generation.

8. Fully developing the function of agricultural manpower and fully utilizing animal power and energy resources and slowing all unnecessary mechanization are effective measures to conserve energy in agriculture and to prevent pollution of the farm villages for a long time to come. According to estimates, the manpower resources in our nation's farm villages total an equivalent of  $2.4 \times 10^7$  horsepower and  $3.5 \times 10^7$  animal power. Manpower is calculated on the basis of working eight hours a day, 300 working days a year, converted into horsepower/hour. If this is done by diesel engines, 11 million tons of diesel fuel must be consumed. Animal power is calculated on the basis of working eight hours a day, 150 days a year, converted into horsepower/hour. If this is done by diesel engines, 7.98 tons of diesel fuel must be consumed. The total of the two amounts to a consumption of 18.98 million tons of diesel fuel (nearly 20 million tons). Our nation now has about 200 million horsepower of motorized farm machinery power, more than three times that of the sum of manpower and animal power, but the actual results are only one-half that of the sum of manpower and animal power. Therefore, at present and for a long time into the future, under the concrete and practical conditions of energy resources, employment and natural conditions, full development of our manpower and animal power makes sense.

In general, we must on the one hand solve such pressing problems as insufficient rural energy supplies, lack of fuel for commune members, cold meals, and on the other hand, the irrational situation which exists in the use of energy. Waste is serious, the ecological balance has been destroyed and these problems urgently require that the state and the concerned leading units of the provinces and cities concretely control the energy resources in farm villages and include the supply of rural energy in their plans so that straw can be returned to the fields, the amount of chemical fertilizers used can be reduced, the per mu yield can be increased, and the environment can be protected. The gain from such conservation is more than sufficient to balance the energy invested. But to reduce the labor intensity in agriculture, to improve production efficiency, to conserve energy used by agriculture, reform of presently available farm machinery and the study and introduction of necessary advanced technologies are also work that urgently needs to be launched.

9296

CSO: 500/4091

NEWS FROM NATURE PRESERVATION ZONES REPORTED

Beijing GUANGMING RIBAO in Chinese 3 Sep 81 p 1

[Text] Journalist ZHANG Tianlai [1728 1131 0171] reports: There has been frequent good news concerning matters of nature preservation in China. The target of establishing 300 nature preservation zones in the country by 1985, as proposed by the First National Nature Preservation Zone Regionalization Work Conference held in Chengdu in Sep of last year, is being positively and steadily implemented.

At present, the establishment of 6 nature preservation zones is being prepared in Beijing to fill the blank of peripheral preservation zones for China's large cities. Some forests and zoological resources of the western and northern suburbs of Beijing will be protected and several forests will be made into parks for the benefit of the people of the capital. In the past, there were no designated nature preserves in Hebei Province. Two will be established in Wuling Mountain and Wutai Mountain this year to protect such valuable animals as the eared pheasant [*Crossoptilon mantchuricum*], the macaque [the rhesus monkey], and the leopard. In the past 2 years, the Guangxi Zhuang Nationality Autonomous Region appropriated large funds to protect the 40 forests of key sources of water of the region totaling 800,000 hectares. Portions of these forests are allocated as water source forest preserves.

As manpower has been organized in the past year to carry out nationwide surveys on foot, there have been some relatively important discoveries of biological resources. Following Guangxi and Sichuan, China's most precious tree, Yinshan [*Cathaya argyrophylla*], known as the botanical panda was also discovered in Hunan. In the famous Wolong Preservation Zone of Sichuan, 10,000 mu of Gongtong [*Davidia involucrata*], the Chinese dove tree, were found. On Taixing Mountain of Shanxi, Cufei [*Cephalotaxus sinensis*] from which a drug for treating cancer may be extracted was discovered and some wild animals as well. At the entrance of the Huanghe Sanmenxia Reservoir in Shaanxi Province, many water fowls were discovered, including the valuable swan.

Some additional important biological resources of China are again included in preservation zones for protection. The golden camellia of Guangxi is among the rare camellia species of the world and is distributed in China only. Aside from one species in Hainan Island, all the remaining 14 species of golden camellia are in Guangxi. The Qingpilin of the seaside Wanning County of Hainan Island is a representative species of the family Dryobalanaceae in the tropical rain forest. It



is distributed in belts on that coastal beach. This is China's only patch of pure Qingpilin forest. In Qixingjizi District of Wanda Mountains of Heilongjiang, the peaks are high, the slopes precipitous, and all are surrounded by forests. Specialists, domestic and foreign, all believe it to be the habitat of the Northeast tigers. It is a suitable site for these tigers to rest and propagate. These important and valuable biological resources have been designated in recent years as preservation zones for protection.

The more exciting thing is the fact that most of the established preservation zones in China are for protecting the forest ecological system and rare wild animals; in the past year, preservation zones have been extended to the realm of marine biology. The Wenchangyu [lancelet] Fishery of Xiamen, the only highly productive lancelet fishery of the world, is now urgently making preparation to establish a preservation zone.

For the purpose of reporting the condition of progress of the nature preservation zone regionalization work in the past year and studying some related concrete problems, the Nature Preservation Zone Specialty Group of the National Agricultural Regionalization Committee called a National Nature Preservation Zone Regionalization Work Symposium in Qiqihaer from 27 Aug to 2 Sep. Participants included delegates coming from 14 provinces, cities, and autonomous regions. The conditions at the symposium show that something new is about to happen. The important sign is the fact that the leaders of some locations have put the work of nature preservation zones in its proper place.

6248

CSO: 5000/4094

BRIEFS

**ENVIRONMENTAL ENGINEERING SOCIETY ESTABLISHED**—The environmental engineering society of the Chinese Environmental Sciences Association was officially founded in March, 1981. The basic task of the environmental engineering society is to study the techniques, principles and engineering measures to control and improve environmental quality. The main content includes: control engineering of polluting sources, comprehensive prevention and control engineering for regional environments, systems engineering for the environment, evaluation of environmental impact, environmental engineering economics, monitoring and control of pollution sources, and monitoring and control of prevention and control engineering projects. The key is the study of comprehensive environmental pollution prevention and control techniques. At the founding ceremony, Guo Zuyuan [6665 4371 3293] was elected president. The meeting reviewed and passed the charter of the environmental engineering society, opened academic exchange, and established the activity plans of the society for this year and next year. It also proposed suggestions concerning the direction and principles of development of environmental engineering and technical and economic policies. [Text] [Beijing HUANJING BAOHU [ENVIRONMENTAL PROTECTION] in Chinese No 3 1981 p 19]

9296

CSO: 5000/4091

# MARCOS ORDERS REFORESTATION ALL OVER COUNTRY

Manila BULLETIN TODAY in English 14 Sep 81 pp 1, 10

[Article by Jose de Vera]

[Text]

President Marcos ordered yesterday the implementation of a massive industrial tree planting program throughout the country to hasten reforestation and to promote the Kilusang Kabuhayan at Kaunlaran (KKK).

He also prescribed interim procedures in the determination and funding of priority projects under the KKK.

In issuing Executive Order No. 725, the President directed the establishment of industrial tree plantations (ITP) in "open, denuded, brushland, and inadequately stocked

areas."

He instructed the Ministry of Natural Resources (MNR) and the bureau of forest development (BFD), implementing agencies of the program, to coordinate with the private wood industry sector.

Establishment of ITPs, according to the President, will not only hasten reforestation and promote livelihood in the rural areas, but also promote ecological balance and assure adequate wood supply for the country's growing population.

Principally involved in the program

are timber license holders who have portions of their concession areas that need revegetation, or are denuded or inadequately stocked.

The President ordered the BFD, with the assistance of timber licensees, to accelerate the identification and delimitation of suitable areas within timber concessions for reforestation and conversion into ITPs.

According to the executive order, timber license holders have six months to apply for ITP license agreements, or undertake an approved seven-year reforestation plan, or do both.

For the development and operation of the ITP, a timber license

holder may form a new corporation with other investors, it said.

The executive order said that timber license holders who fail to apply for ITPs or develop their areas in accordance with the ITP program will be penalized, ranging from summary suspension to outright revocation of licenses.

In a separate memorandum circular, the President said that the placing of priority and approval of projects under the KKK will be based on the number and nature of beneficiaries, their contributions to the improvement of the country's food production, and their role in the development of alternative sources of energy.

The circular also created a regional secretariat for each of the 14 regions, with a regional action office (RAO) as chairman.

The RAO shall approve KKK projects in the region endorsed by the municipal coordinators and lead support agencies, the circular said.

Under the prescribed procedures, projects submitted for approval by the regional secretariat will be classified as KKK-financed or KKK-affiliated projects.

KKK-financed projects will be funded

from the P300-million "pahunan" fund deposited with the Philippine National Bank, the Development Bank of the Philippines, and the Land Bank of the Philippines.

This collateral-free and non-interest bearing fund will be used as "pahunan" for livelihood enterprises endorsed by the municipal coordinator or lead support agencies and approved by the regional secretariat.

Livelihood enterprises qualified for this particular funding, among others, are projects:

1. Whose prototypes have been approved by the Pambansang Lupon.
2. Whose target beneficiaries are those given priority by the Pambansang Lupon.
3. With sites validated by the regional secretariat or by the lead supporting agencies.
4. Which are non-traditional and do not fall under the Central Bank's specialized financing schemes.
5. Which required project development/front-end support.

Other projects not falling under these categories will be funded by another P700 million which the government has released to the banking system as loan grants to KKK projects but bearing an interest rate of 12 per cent per annum.

## FOREST REMOVAL OUTPACING REFORESTATION EFFORTS

Kuala Lumpur BUSINESS TIMES in English 27 Aug 81 p 6

[Article by Tom Levenson in Colombo]

[Text]

EXPERTS fear the price of economic development in Sri Lanka may be the survival of the island's remaining forests.

The forests are a major economic and environmental resource but officials are worried that those now being harvested will be gone in 30 years if the present cutting rate continues unchecked.

According to the Forest Department, Sri Lanka loses 150,000 to 170,000 acres (60,730 to 68,900 hectares) of woodland every year.

The US Agency for International Development (AID) estimates that all Sri Lanka's 3.5 million acres (1.4 million hectares) of forest cover will be gone by the year 2010 if reforestation is not accelerated. The average planting rate has been 18,000 acres (7,290 hectares) per year for last five years.

But while technical experts in the Forest Department and AID missions warn of severe consequences if present rate of forest loss continues, budgetary and economic pressures are holding back efforts to contain the damage.

The giant Mahaweli River development project, described as crucial for Sri Lanka's economic future, poses a new threat. It calls for removal of one-sixth of the remaining woodland

in Sri Lanka during the next five to eight years.

Dr James Bonner of the US AID agency said wood was a major source of commercial fuel in Sri Lanka, which made it difficult to slow the harvesting of the forests.

"Originally we thought the harvest was a result of rural pressure, such as fuel used for cooking and light," he said. "But the biggest sector pulling wood is the industrial sector — brick and tile kilns, tea-drying and tobacco-drying, which takes an inordinate amount of wood because tobacco is harvested moist."

Said Mr A.D.R. Ratnarajah, Deputy Conservator of Forests: "As the tea plantations expand, they cut down the forest. Each tea estate should use 10 per cent of its acreage to meet its own and its workers fuel requirements."

He added: "Illicit logging is also increasing as the State Timber Corporation charges such high prices (for lumber). The Forest Department is under-staffed and just cannot cope with the problem."

In dry zone forests, the chief cause of forest loss is the practice of slash-and-burn farming on public and private land.

But Mr Ratnarajah listed four main environmental consequences

that have already occurred through deforestation of water catchment areas.

Flash floods have become more frequent, soil erosion and consequent loss of agricultural productivity has increased, hydroelectric reservoirs have silted up, and the climate has changed, losing rain that used to fall between the two monsoon periods.

Dr Bonner said that once the soil balance was disturbed "it takes hundreds of years to get it back to its natural state."

The Mahaweli River development scheme is an internationally-funded series of dams, canals and irrigation systems that will, on completion, affect two-thirds of Sri Lanka's land area.

But despite the danger to watershed areas, the project may take 600,000 acres (240,000 hectares) of forests, much of it in catchment areas, during the next five years.

Dr Bonner said that if 250,000 acres (100,000 hectares) were reforested during the next five to eight years "they would have no problem with the Mahaweli project."

But Mr Ratnarajah said loss of the 600,000 acres would affect not only wildlife and the climate, there would also be a shortage of timber unless reforestation was speeded up.

He reported that re-

forestation last year totalled 21,230 acres (12,648 hectares), or 1,286 acres (520 hectares) over the target.

However, this total is still well short of forest losses, and in 1981, because of sharp budget cuts, replanting will reach only 8,000 acres (3,238 hectares), all supported by foreign aid.

The government agreed this month to seek a US\$6 million loan from the World Bank to provide for "urgent and essential" forest development from 1983-84.

The best that officials look for is to slow the rate of destruction in the hope that circumstances later will permit a successful regeneration of the forest cover.

Dr Bonner said that a United Nations-supported programme would provide a seed stock for later use. Mr Ratnarajah said the Forest Department expected the situation to stabilise in eight years with the further loss of approximately one million acres (400,000 hectares) of cover.

But his report also warned that the land available for forest "is a diminishing resource when considered with the annual increase in population currently running at the rate of 1.7 per cent." — Reuter

## BRIEFS

POLLUTION MOVE--The Kisumu Municipal Council has prepared a detailed report on measures to avert the pollution of Lake Victoria, the town's only sources of fresh water supply. The Kisumu Mayor, Coun. Ezra Gumbe, disclosed this when he met the Director of Public Works of Roanoke City in the United States, Mr Thomas F. Brandy, at the weekend. Coun. Gumbe said that although the lake had not been polluted, there was growing concern that the lake water could soon be faced with a considerable amount of pollution. [Text] [Nairobi THE STANDARD in English 22 Sep 81 p 5]

CSO: 5000/5603



ZAMBEZI RIVER EROSION PROBLEM FRIGHTENS WORKERS

Beira NOTICIAS DA BEIRA in Portuguese 13 Aug 81 p 3

[Excerpt] The Marromeu and Luabo wharves of the Sena Sugar Estates company that daily handle more than 500 tons of goods are in a critical situation because of the constant threat presented by the waters of the Zambezi River that have gradually been destroying the installations. Warehouses and cranes have already been moved twice because of erosion problems.

This situation is known to officials, who are conducting a technological study to be applied on a short-term basis. This is a very important undertaking because the installations guarantee the export of strategic products such as sugar and molasses from the Luabo factory, coal and wooden ties, fertilizers and other goods, besides ensuring the movement of passengers.

According to Silvestre Jaime Pedro, an official at the Marromeu wharf, the prospect of new installations would be very timely. The initiative would allow for increased efficiency in the handling of merchandise as well as in the docking of boats. Moreover, it would contribute toward the protection of the 134 workers at this wharf.

Silvestre Pedro added: "It is necessary to build new wharves in reinforced concrete, which would delay or minimize the effects of erosion. During high-water periods, workers are afraid of the mounting waters that have often struck deeply."

CSO: 5000/5601

BEIRA EMERGENCY SANITATION PLAN ADOPTED

Maputo NOTICIAS in Portuguese 10 Sep 81 p 10

[Text] Beira--An emergency plan covering the restoration of the palm tree irrigation canal and improvement of the sanitation system for river water in the vicinity of Beira was recently adopted in view of the unsuccessful local drainage project known as Project IR-2 which showed a loss of 50,000 contos obtained from a foreign source (in foreign exchange).

The emergency plan is to be completed by June 1982. It will be handled by the Portuguese firm Technical Constructions and is estimated to cost about 6,000 contos, of which 25 percent is from a foreign source.

Among other things, this measure involves improving the main canals which serve to clean up rain water flowing to the sea and beginning with the drainage canal, surveying Beira's complete drainage system and, simultaneously, adapting marshy lands to agricultural activity.

Failure of Project IR-2

The failure of Project IR-2 results from various factors--, a lack of proper understanding by Beira's City Council and Executive Council and other factors relating to the basic concept and administration.

As a result, the cleanup of Beira's environment and agricultural area have been seriously jeopardized; moreover, this caused hardship to 5,000 families which could have benefited from hundreds of sacks of rice whose planting technique was contemplated upon completion of the above project.

Origin of Project

Initiated in 1977 with financing by the governments of Mozambique and certain Nordic countries, Project IR-2 emerged as a result of the need to improve on a previous project carried out by former Tamega, which introduced the ditch collector system with a view to bettering the living conditions of the Sofala residents, particularly since the city is located at sea level.

Moreover, that project also involved the provincial Preventive Medicine Service with the aim of combating schistosomiasis, cholera and malaria and treating the accumulated rain water, transmitter of diseases.

8568

CSO: 5000/5060

# CYCLONE PREPAREDNESS GROUP MEETING REPORTED

Victoria NATION in English 21 Sep 81 pp 1,2

[Text]

METEOROLOGISTS, hydrologists and other experts from the South-West Indian Ocean region worked their way to the successful adoption of an anti-cyclone operational plan at the closing of the Reef Hotel conference at the weekend.

The results bore out forecasts at the opening that the meeting could prove to be the most important in the life of the Tropical Cyclone Committee of the South-West Indian Ocean.

Since last Monday, delegates and observers from eight mainland and island countries and three international bodies have, under the watchful eye of the World Meteorological Organisation, thrashed out precise details of the Committee's technical plan of objectives as well as its first ever operational plan.

Identifying the member states' objectives as being to reduce the human suffering and costly economic losses

caused by cyclones in the region, the session chairman, Mr. E. Randrianarison of Madagascar, said that for the first time in the history of the Committee an operational plan had been adopted with total agreement on what must be done to combat the cyclone menace.

A procedure had been adopted to realise the objectives set out in the Committee's technical plan, he said.

This, in turn, had been corrected and made more precise and detailed. All this work, which had been carried out in an atmosphere of understanding and co-operation so friendly as to suggest a family, had resulted in a concrete project being formally presented for funding by the United Nations Development Programme, he added.

Dr. Samuel Mbele-Mbong, the Regional Director for Africa of the UN-affiliated WHO, said, on behalf of the

WHO secretariat which organised the session, that a clear way forward in the struggle against cyclones and cyclone damage had been set for the committee to take. No effort would be spared by the WMO in playing its part.

At the beginning of the closing session, delegates from Tanzania and Malawi, speaking for the rest of the delegates, expressed their gratitude to the Seychelles Government for hosting the conference, the excellent facilities put at their disposal and the extremely hospitable atmosphere.

The two delegates were later joined in their thanks by the conference chairman and the WMO Regional Director who pointed out that the highly successful and positive results were a natural product of the hospitable setting.

The Seychellois delegation to the conference was led by

Mr. R. J. Marpole, the Senior Metereological Officer in the Directorate of Civil Aviation and included Mr. E. R. Rooke, a hydrologist of Seychelles Water Authority, and Super-intendant M. Antoine of the Seychelles Police.

Other delegates came from the Comoros, Madagascar, Malawi, Mauritius, Mozambique, Reunion and Tanzania. There were observers from the UND?, the United Nations Disaster Relief Organisation and the League of Red Cross Societies.

CSO: 5000/5605

## BRIEFS

VAAL RIVER POLLUTION--Residents of three Western Transvaal towns--Klerksdorp, Stilfontein and Orkney--are living through another water pollution crisis and the problem has become so bad that their water often turns dark brown or even black. Klerksdorp's town engineer, Mr George Stegmann, said yesterday: "We need a solution very desperately--this is something you dare not live with." And in Pretoria, a Government water pollution expert, Mr Axel Zunckel, said he agreed with Mr Stegmann that the pollution of Klerksdorp's water supply was getting worse. But Mr Zunckel, who is attached to the Department of Water Affairs, said yesterday the problem had been investigated and a report on the matter would be completed soon. The water supply to the three towns has been polluted by varying concentrations of manganese in the Vaal River, and for the past two years it has been suspected that mines have been responsible for the contamination. Mr Zunckel believes that the source of the pollution is a slimes dam where seepage into the Vaal River may have been taking place for up to 15 years. He said manganese was used by mines for extracting uranium. Mr Zunckel said the water supply was not toxic and that there were no immediate health dangers. [Sean O'Connor] [Text] [Johannesburg RAND DAILY MAIL in English 2 Sep 81 p 1]

COMMITTEE ON WATER SCARCITY--A committee of inquiry would be appointed soon to identify water scarce areas in South Africa with a view to providing assistance to such areas, the Minister of Water Affairs, Forestry and Conservation, Dr Nak van der Merwe said yesterday. Speaking during the debate on his budget vote he said there were areas in the country where the minimum water requirements could not be met due to the depletion and inaccessibility of resources. The standard of living of the population was expected to rise with development and so would the per capita consumption of water. It was expected that the demand for water would double every 23 years. There were areas which could be identified as water scarce areas and it was the department's intention to identify these areas and "through exceptional assistance to give them adequate water supplies at rates which will make the continued existence of large parts of our Platteland." A committee would be appointed soon to make an in depth study of the standards which had to be applied to decide on the provision of water supplies to such areas. The committee would try to identify water scarce areas which would qualify for exceptional assistance and determine the tariff policy to be applied. [Text] [Johannesburg THE CITIZEN in English 22 Sep 81 p 4]

CSO: 5000/5602



## FOUR STAGE IMPLEMENTATION OF SEWERAGE REHABILITATION

Dar es Salaam DAILY NEWS in English 25 Sep 81 p 3

[Excerpt]

SEWERAGE and sanitation systems in Dar es Salaam would be rehabilitated under a major project aimed at saving city residents from hazards arising from filth.

The Project Manager of the Dar es Salaam sewerage and sanitation project, Ndugu C.K. Sikri, said in the city on Wednesday that the project under the Ministry of Lands, Housing and Urban Development, would be implemented in four stages between now and the year 2010.

The first stage would be implemented between this year and 1984, he said. The implementation process had already started, he added.

Ndugu Sikri was briefing participants to the ongoing conference on plan implementation and human settlements administration in Tanzania at the Ardhi Institute in Dar es Salaam.

He said feasibility studies conducted under the first and

second phases of the project led to the drawing up of master plans which recommended among others, that stabilisation ponds (treatment works) were the least cost sewage treatment option for Dar es Salaam.

It was also recommended that a rehabilitation programme should be implemented as a matter of emergency in view of the high risks to public health and the damage being done to existing sewerage and sanitation assets owned by the City Council.

The master plan on low cost sanitation had recom-

mended that all houses without water closets should be provided with a modified design of the pit latrine, commonly called *choo kizuri*. Ndugu Sikri said.

The low cost sanitation master plan also recommended that houses with

water closets should be provided with a septic tank if main drainage was not provided.

Ndugu Sikri told participants that only the University of Dar es Salaam waste stabilisation ponds were working well, all others been either inoperative or ineffective.

Similarly, he explained, only two out of the total of 17 sewage pumping stations in the city were in operation and the rest had broken down. The two were the ones at the University and at Mikocheni.

Ndugu Sikri said the project, which was the first of its kind in Tanzania and possibly in the world, presented a unique blend of sanitation technique through conventional sewerage and low cost sanitation.

The first stage of the project would cover 1981 to 1984, the second 1985 to 1989, the third 1990 to 1999 and the last 2000 to 2010.

CSO: 5000/5604

## STRIPPING LAND OF TREES, INDISCRIMINATE PLOUGHING CAUSING EROSION

Salisbury THE SUNDAY MAIL in English 20 Sep 81 p 9

[Article by Giles Kuimbal]

[Text]

FOR the people of Chiweshe the Government's national tree planting exercise has come almost too late. Meal times are no longer determined by the availability of food, but by how much firewood is needed for cooking.

This was the harsh testimony given by local residents of their plight caused by the depletion of trees in their region.

One young mother said: "These days I have to make a choice between heating water to bath my nine-month-old son or cook. It is no longer possible to do both. We just do not have any wood. Those who have cattle use dung for fuel."

Dung had become so precious that buckets were attached to cows to ensure that none was lost.

Some villagers have been forced to tear down their wooden fences in their quest for fuel.

One old widow said: "If you look around our village, there are just no trees to be seen. The nearest trees to us are beyond the mountains, eight kilometres away."

Business-minded villagers, owning ox-carts, make a good living hauling wood from further

afield and selling it to their neighbours for \$10 a cord — a high price when the average family earns as little as \$250 a year from the sale of cash crops such as maize and groundnuts.

Ministry of Natural Resources and Water Development spokesman Mr James Gandara said that deforestation in Chiweshe, Seka, Chibota and Mhondoro was the worst in the country.

"The situation was partly exacerbated by the war when many trees were cut down to make homes in the keeps. After the war people had to build new houses — using up still more wood."

## DESERT

Apart from the wood fuel shortage there was the problem of long-term damage to the land. With-out trees land became a desert.

"Tree roots keep soil together; without them it is washed away when the rains come. The leaves shed by trees make compost, fertilising the soil and fertile soil grows grass.

"This in turn helps bind the soil and feed cattle, which again provide dung to fertilise the soil."

The soil obviously lost out if villages were forced to use dung as fuel.

"The problem of tree depletion causes a very vicious circle," he said.

In recognition of the vital importance of trees to the country the Prime Minister, Mr Mugabe, has made December 6 a national tree day. Zimbabweans are asked to plant trees on this day.

A Bill designed to protect timber in communal areas is now before the Senate.

Speaking during the second reading debate last week Minister of Natural Resources and Water Development Senator Joseph Muka said that the cutting of wood by people not normally resident in communal lands would be regulated. The Bill made provision for increased penalties for unlawful wood cutting.

The Government has also said it will encourage the planting of exotic trees such as gum, which took less time to grow than the indigenous trees.

Mr Gandara urged rural people to do more to solve the tree problem.

"For every tree that is cut down, three trees must be replanted," he said.

**WITH** the planting season now drawing near, indiscriminate ploughing of undeveloped land has started again on an unprecedented scale in some of Salisbury's residential areas.

According to some Salisbury councillors, the degree of ploughing has reached alarming proportions especially in the southern suburbs.

The worst affected area is Waterfalls, where large tracts of open, undeveloped land have attracted people from adjacent former townships.

With hoes, picks and mattocks, whole families are crossing the Makabusi River from Highfield and Harare to carve up pieces of land for themselves.

Their favourite choice is the alluvial soil on the banks of streams where they dig right down to the water.

For this reason, the worst hit areas are the banks of the Makabusi and the stream between Parktown and Lord Malvern School.

To plough as much land as possible, some families hire unemployed men to dig for them for an agreed fee.

Mr Tsuru Sondo, a Malawian found digging near Lord Malvern School, said he had been hired by

a family living in Highfield.

Families digging in a vlei just upstream of him were from Harare, he said.

"I am getting \$15 for the piece of work I am doing on this little plot," he said.

Meanwhile, the attention of the city council is being drawn to the cultivation menace threatening to destroy the face of Salisbury's southern suburbs.

Councillor John Chiweshe, vice-chairman of the town planning and works committee, said in an interview that he sympathised with the people's need to supplement their means of livelihood by planting crops.

Councillor Norman Henry, who represents Waterfalls on the city council, agreed.

"The people who have to plant these crops need to be regulated and kept under control," he said.

He added: "The reason I talk about control is because of the need for conservation and health protection."

"When people spend a lot of their time digging beside a stream, it could lead to the water being polluted, and there is nothing more dangerous to health than polluted food."

Cultivation on river banks also encouraged soil erosion.

GREECE

GOVERNMENT STUDIES INCENTIVES TO LOWER AUTO POLLUTION

Athens TO VIMA in Greek 9 Sep 81 p 1

[Text] The government is studying lower taxes and duties for private automobiles manufactured according to foreign specifications for environmental protection.

Reliable sources yesterday reported that departmental-level studies had been concluded on the effect of car exhausts on air pollution in Athens.

Included in the measures that the authors of the study propose is the providing of incentives to people who buy cars with such foreign specifications.

The chief incentive would be a reduction in the special duty levied on imported cars.

As is known, this duty varies between 50 and 300 thousand drachmas depending on the car's cubic capacity.

It also appears that the reduction will even apply to the sales tax.

The recommendation of the department officials is under study in the Ministry of Coordination and Finance where an assessment is being made of the measure's impact on public revenues and on the exchange cost aspect of the balance of payments.

Possibly the reduction may be as much as 50 percent of the assessment levied on imported cars and it will be offered only to the original buyers of a car or to those who sell their old car to people living outside of Athens.

It is considered a sure thing that the measure will be announced before the elections as one more of a number of pre-election offerings. But it will neither benefit its intended recipients nor result in less pollution unless importers and other dealers are made to import into Greece those makes of cars exported to countries with strict environmental protection standards.

Such cars cost more than "regular" ones and are intended primarily for the United States and certain other European countries.

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